REMARKS

The undersigned representative thanks Examiner Corsaro for the courtesy extended during the telephonic interview of 23 March 2005. As discussed during the interview certain claims have been amended to provide further clarification and others have been cancelled without prejudice to consideration in a continuing application. Specifically, claims 1 and 9 have been amended, claims 32-45 have been cancelled without prejudice to consideration in a continuing application, and claims 46-53 have been added. It is believed no further claim fees are due because more claims in total and more or of an independent type were cancelled than where added; however, should any further claim fees be due, please charge such fees to Deposit Account No. 12-2424, but not to include issue fees.

This Submission accompanies a Request for Continued Examination (RCE) and a petition to extend the time to respond by one month, along with a credit card authorization form in the amount required for these papers. Also included is a request to change the correspondence address for this application.

The Final Action rejected all the independent claims pending at the time under 35 USC §103(a) as being unpatentable over Kellerman in view of Elko. The Applicant maintains that the asserted combination of Kellerman and Elko fails to teach or suggest many of the claimed features of these pending claims. During the telephonic interview, the undersigned representative sought further explanation as to how certain exemplary features were taught or suggested by the Kellerman/Elko combination generally, and more specifically, an explanation of how passages of Kellerman cited in the Final Office Action taught or suggested such features. Though the course of this endeavor, it was recognized that modest clarifications would be favorably received as regards certain distinguishing features, and further that a more detailed

explanation would support patentability of other claims. For the sake of brevity and clarity, the following comments focus on the rejection of independent claims, it being understood that in many cases further reasons support patentability of rejected dependent claims as set forth, for example, in the previous Response mailed on 12 July 2004.

Independent claims 1 and 9 have been clarified by amendment in regard to some of the distinguishing features discussed during the March 23, 2005 interview. Claim 1 has been amended to clarify that for each of the interfering source signals (which each include a plurality of frequency components), one of the frequency components is suppressed, and that "the one of the frequency components suppressed for any one of the interfering source signals differs from the one of the frequency components suppressed for any other of the interfering source signals." In other words, the suppressed frequency component is different for each different interfering source signal recited in claim 1. It is respectfully submitted that claim 1 is patentable because of these features, among others. Furthermore, for at least the same reasons, claims 2-8 depending from claim 1 are patentable.

Independent claim 9 was also clarified with regard to suppression of interfering source signal frequency components. The features of claim 9 include:

> interfering source signals each being represented in terms of a plurality of frequency components, said components each corresponding to a different frequency ...[and]... an extraction operator ... to suppress at least one of said frequency components of each of said interfering source signals and extract a desired signal corresponding to said desired source, said at least one of said frequency components being suppressed is different for each of said interfering source signals

Thus, among the claim 9 features, the suppressed frequency component for each of the interfering source signals recited differs from one to the next. Again, it is respectfully submitted that claim 9 is patentable, as are its dependent claims 10-16 for at least the same reasons.

The features of independent claims 17 and 26 include several features that could not be found in asserted Kellerman passages of the Final Office Action. Among the features of claim 17 are localizing sources as a function of "a number of coincidence patterns, the patterns each corresponding to one of the positions and establishing an expected variation of acoustic source position information with frequency attributable to a source at the one of the positions." As to claim 26, its features include a localization operator to determine source localization signals from said delayed signals and a number of coincidence patterns, where such patterns each correspond to "one of said positions and relating frequency varying sound source position information caused by ambiguous phase multiples to said one of said positions to improve sound source localization..." By way of nonlimiting example, coincidence patterns are explained on page 29, line 10 through page 34, line 33 of the present application (See also, Fig. 18 of the present application).

The Office Actions appears to assert that Kellerman discloses a "coincidence pattern" with citation to certain passages that are collectively reproduced as follows. The first citation is to column 1, lines 15-37 of Kellerman:

> In "Proceedings Internal Conference on Acoustics, Speech, and Signal Processing (ICASSP), pp. 2578-2581, New York, April 1988, IEEE" is discussed a microphone array comprising four microphones positioned in the comers of a room with a square ground plan, whose microphone signals are processed so that the influence of noise signals superimposed on speech signals is reduced. For this purpose, the microphone signals are first mutually shifted with respect to time to cancel delay differences of a speaker with respect to the individual microphones. The microphone

signals having thus in-phase speech components are superimposed on a sum signal by an adder device, so that the uncorrelated noise components of the microphone signals are diminished when superimposed. The diminishing is then not optimal if there is an inhomogeneous noise signal area. In that case different noise signal powers occur at the positions where the microphones are installed. The superimposed microphone signals are applied to an adaptive filter (Wiener filter) once they have been diminished by a correction factor used for taking the mean value. This filter is set by evaluating the in-phase microphone signals and provides a further suppression of the noise signals.

Also, column 3, lines 25-61 of Kellerman was cited, as follows:

The outputs of the preprocessor unit 2 are connected to controllable multipliers 3 which provide a weighting with weight factors c_i (i=1, . . . , N) in the microphone signal branches. The weight factors $c_1, \ldots, c_N$ are set by an evaluation unit 4 which determines them by evaluating the microphone signals $x_1, \ldots, x_N$ according to a scheme still to be explained. If an approximately time-dependent steadiness of the statistical properties of the noise components n_i may be assumed, a single computation of the weight factors will suffice.

The outputs of the multipliers 3, which at the same time represent the outputs of the microphone signal branches, are connected to N inputs of an adder device 5. This device produces a sum signal x=s+n from the output signals of the multipliers 3, which sum signal is applied to an adaptive filter 6--for example, a FIR filter arranged as a Wiener filter. The filter 6 is set by the evaluation unit 4 in response to an evaluation of the microphone signals, for example, as in the state of the art cited after the opening paragraph.

In the following the scheme will be explained according to which the evaluation unit 4 determines the weight factors c_i. Sample values of the microphone signals x_i are written in the buffer memory arranged in the evaluation unit 4. Estimates for the amplitudes of the noise components n_i are obtained by evaluating the sample values of microphone signals x_i stored in the buffer memory from the periods of time in which no or negligibly small speech components s_i occur. Such speech pauses can be detected by the striking signal shape or spectrum, respectively, of speech signals as against noise signals. By subtracting the determined estimates of the amplitudes of the noise signals n_i from estimates of the amplitudes of microphone signals x_i (with speech components s_i) lying outside the speech pauses, which estimates are also determined from sample values stored in the buffer memory, the estimates of the amplitudes of the speech components s_i are determined.

Column 4, lines 10-35 of Kellerman was also cited, as follows:

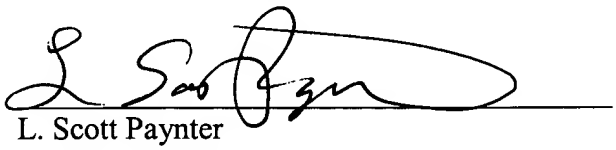
> speech signal ratios a_i are determined by the ratio of the estimated amplitudes of the speech components s_i to the estimated amplitude of the speech component s_1 used as a reference speech component, if x_1 is used as a reference microphone signal. n_i is then used as a reference noise signal. Reference variables are without constraint as are all the other microphone signals or speech and noise components respectively, that have an index $i \pm 1$. Assuming that the noise components n_i are uncorrelated and free from a mean value, the following holds
>
> $E\{n_i\, n_j\} = 0$ for all $i \pm j$
>
> and
>
> $E\{n_i^2\} = \sigma_{ni}^2 = b_i^2 \sigma_{n1}^2$
>
> where $E\{\ \}$ is used as an expected value operator and σ_{n1}^2 is used as a reference noise power. This defines noise signal ratios b_i^2 by the ratio of the estimated powers σ_{ni}^2 of the noise components to the estimated power σ_{n1}^2 of the reference noise component.
>
> Furthermore, there is assumed that the speech and noise components are not mutually correlated and are mean value-free which is described by the expression...

Again, as a careful review of these passages will reveal, there is no teaching, suggestion, or other disclosure of any type of coincidence pattern and attendant features as variously recited in claim 17 or claim 26. Dependent claims 18-25 and 27-32 are patentable for at least the same reasons.

Independent claim 46 has been added and is believed to be patentable over the art of record separately or in any combination thereof. Claims 47-52 depend from claim 46, defining further inventive aspects. Dependent claim 53 has also been added to define further inventive aspects in connection with base claim 17.

In view of the foregoing, it is believed that claims 1-31 and 46-53 are in condition for allowance. Reconsideration of the present application as amended is respectfully requested. The Examiner is encouraged to contact the undersigned by telephone to resolve any outstanding matters concerning the present application.

Respectfully submitted:



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